

1 advantage those uses and requirements ultimately.
2 So while the existing system is certainly
3 imperfect, and no one could possibly argue that it
4 isn't, it does serve a wide variety of needs to a
5 reasonable extent.

6 And a lot of users I suspect like us
7 are not very favorably inclined to a grand
8 experiment that may improve things and may not,
9 particularly for the specialized users. I think
10 you see that run through a lot of the comments in
11 the docket.

12 MR. MARSHALL: I would like to move on
13 to some more policy related, and then we will pick
14 up a couple of more of the questions that I see out
15 there. Let's get one more question to the panel,
16 and then we will come back.

17 Panel opinion: Do policies that make
18 it easier to transfer spectrum to secondary markets
19 improve efficiency; and under what circumstances do
20 you think the Commission should adopt or avoid
21 those kinds of policies? And we will start -- and
22 I hesitate to say, but we will start with Michael.

23 MR. FITCH: No, actually from a
24 satellite perspective, we use secondary markets,
25 and have for many years thanks to decisions by the

1 Commission that enabled them.

2 It works pretty efficiently. I guess
3 the caveat there is that it is -- that it operates
4 to a large extent between like-situated operators
5 serving somewhat consistent requirements of users.
6 So it is a kind of manageable universe in that
7 regard.

8 But we do take advantage of it, and
9 support its continuation as it stands now for the
10 satellite services.

11 MR. MARSHALL: Gerry.

12 PROF. FAULHABER: The FCC has been
13 moving in the direction of secondary markets, less
14 restrictions on use of particular bandwidths, band
15 managers, policies which basically create more
16 flexibility.

17 And, you know, I am all in favor of
18 this. This is not quite rearranging chairs on the
19 Titanic, but it is the notion of saying taking the
20 present system and let's kind of move it in a more
21 market-oriented way. And obviously I am in favor
22 of that.

23 Some of my more aggressive economist
24 colleagues would say we are putting lipstick on the
25 pig, but yeah, I sort of think this is okay. Sure.

1 MR. MARSHALL: Let me guess.

2 MR. WILKINS: Obviously, we favor a
3 market-based transaction system. However -- I
4 mean, I am just kind of looking and making notes as
5 speakers talk, and I think from a -- and again the
6 research that I guess we have completed in the last
7 few weeks, you know, the current FCC process is a
8 bit cumbersome.

9 It is an all or nothing situation, I
10 believe, and it requires commission approval, and
11 with bilateral contracts. You know, you purchase
12 for the same use. I think there is some issues
13 there that need to be addressed.

14 I think if you take into consider the
15 property rights, and the right to use for the
16 individual companies, and examples that I would use
17 is let's say in the broadcast arena that there is a
18 sporting event.

19 And I was involved in a couple of
20 sporting events in my neck of the woods actually a
21 few years ago, where short-term use of spectrum
22 would have been ideal. It was not available, and a
23 high risk spectrum was needed, and it just was not
24 available in the marketplace, and to negotiate a
25 contract would have taken way, way too long for

1 this to be applicable.

2 So again I think there are instances,
3 and I think in the market development that there
4 are shorter term uses for spectrum, and a longer
5 term view that one of the panelists talked about, a
6 long term view of the spectrum.

7 And let's say we award the auction for
8 spectrum down the road, and all of a sudden the
9 uses or the technology has changed. So the
10 spectrum that you have now been awarded is not as
11 useful as perhaps as you thought.

12 So now under the secondary market, you
13 can find a counter-party that now has the
14 technology, or the use for that spectrum. So again
15 I think there is instances and examples in a longer
16 playing field where there can be more effective
17 uses of the spectrum.

18 MR. MARSHALL: I would like to make a
19 couple of comments. This is an area that is
20 totally outside of the DoD's interests, but as an
21 observer, it is hard to argue that we gave someone
22 spectrum 30 years ago, and that that property right
23 is so locked in that they can pursue another piece
24 of business with what essentially is public
25 property.

1 I think it is one thing to say that you
2 lease out unused public safety channels when you
3 are not using them because you need to have them
4 available to do your mission when you want to
5 reclaim them.

6 It is quite another to say that when
7 you stop broadcasting Howdy Doody 20 years from
8 now, there is some inherent right to resell that.
9 There was some basis of licensing. The licensing
10 of a public safety channel is valid 20 years ago
11 whether or not it is secondarily licensed or not.

12 It is presumably a valid public need,
13 and revenues being done, and that's great. That is
14 quite different than saying that I am basically
15 pulling out of the premise for which it was
16 licensed.

17 So it seems that since we have an
18 interest in deappetizing commercial, and finding
19 other ways for commercial need to be satisfied, and
20 then looking to the public frequencies, Federal
21 frequencies.

22 Clearly there is a pool of frequencies
23 that exist by legacy, because really a regulatory
24 process hasn't really looked at whether the basis
25 of those still exists and is still valid, and they

1 merely become a kind of a warrant on the public
2 assets.

3 And it is sort of hard to see that, and
4 so secondary licensing from the spot market makes
5 sense, and carrying that forward to saying that it
6 necessarily means that a UHF channel is forever
7 until something regenerates hertz seems like quite
8 a different matter in a way until it becomes a
9 regulatory excuse.

10 And you just not deal with something
11 that clearly that you would never do. And if you
12 say you wouldn't buy stock, and you should sell it
13 if it is in your portfolio. And a similar thing,
14 if you had been licensed to use, why would you
15 retain that license decades later.

16 MR. HARASETH: I am going to jump back
17 a little bit to Michael back here, and Boeing, and
18 public safety has the same concerns, but it seems
19 like there is a magical number I have heard a
20 couple of times today here, and it is 15 percent.
21 Is it okay that only 15 percent of the people are
22 using the broadcast out there?

23 Well, the same 15 percent came up two
24 different times under consideration of how much
25 actual air time is public safety using in a given

1 market, even here in Washington, D.C.

2 If you took all the land mobile market
3 out there, all the frequencies, and you monitored
4 those on a daily basis, well, 15 percent is still
5 the same figure, and it would probably be the same
6 figure for Boeing down here, too.

7 Okay. Is there some mechanism within
8 the conventional channelization where that excess
9 time could be given off as a secondary market to
10 some other use that had a greater tolerance for
11 latency if you want? Yeah. You know, okay. So
12 there is a potential for a secondary market even
13 for some of the commercial channel -- the
14 conventional channelizations.

15 It's what technology would allow that,
16 and what flexibility of the rules would allow that,
17 and what type of mechanisms could broker that. I
18 think these are what we are all talking about here.

19
20 Public safety, I think what they are
21 concerned about is not so much having that
22 guaranteed frequency there all the time, but the
23 guaranteed access rights when and where they need
24 it.

25 And right now the only way to get that

1 is to have a lock on that channel and that
2 frequency. Now is there a model in the figure that
3 would provide for that in some other mechanism in a
4 more flexible way?

5 Well, if they could get those
6 guarantees, then that might be a way. So the
7 problem that I see is that transition in moving
8 from the conventional model that we have now into
9 this other model down the road.

10 MR. ENGELMAN: Would you say that would
11 be true -- I know that you are not military, but
12 would you say that would be true of military, as
13 well as public safety?

14 MR. HARASETH: As long as they could
15 get the guarantees. Now, convincing them of
16 getting the guarantees is going to be harder than
17 it is for public safety.

18 MR. MARSHALL: It is not enough -- the
19 policy has to recognize that it is not enough to
20 merely get access to spectrum. I would say that
21 the military has been the most cooperative in not
22 asserting its rights, because frankly the military
23 can have the right to probably open every garage
24 door in the United States if it asserted its full
25 spectrum rights.

1 It doesn't do that because it is
2 politically unacceptable. So part of access is not
3 merely -- and as much as I would like to think of
4 these as engineering challenges, reclaiming access
5 isn't purely a technical issue.

6 If someone put a cell system up on to a
7 frequency that is military, and then you come and
8 tell 10,000 people that their cell phones aren't
9 going to come on because you are doing training,
10 the answer is that Congress will tell you not to do
11 any more training.

12 So you have to take a broad view of
13 what does it mean to regain access, and it is not
14 strictly the technical, depending on time lines.
15 It is the disruption. It is the fact that we have
16 shut down a lot of radar systems because they open
17 garage doors.

18 They interfere with illegally small C-
19 band dishes that have side-low performance, poor
20 side-low performance. All of these things are
21 incumbent when you share a spectrum, even though
22 they don't appear in an engineering term.

23 So I think it is not just enough to
24 regain access. Let's regain access without an
25 unacceptable degree of disruption to whoever sort

1 of moved in and became incumbent. Squatters rights
2 has a lot of effects in spectrum, and it seems to
3 be more than the 17 years that it is in the
4 statute.

5 MR. LYNCH: With fear of sounding like
6 a me-too person, I think from our point of five
7 that secondary markets for like services -- and
8 let's look strictly a CMRS. Company A has excess
9 spectrum, if that is possible here in D.C., and
10 Company B could use it. I think that should be a
11 peer-to-peer type of transaction, and quite simple,
12 and probably quite quick.

13 But for the industry, I know that we
14 could probably sell more equipment that way. But
15 the other one that comes out of another part of our
16 company that I am concerned about is the same thing
17 that Ron here is concerned about, and that is the
18 public safety people.

19 How do you protect their interests, and
20 I think we have made some comments recently without
21 some sort of technology that would allow you
22 instantly to override whoever is in that band
23 commercially.

24 It is sort of tricky getting these guys
25 what they need when they need it. I know that

1 there is a lot of debate going on in the public
2 protection-disaster relief arena right now. The
3 same issue of how much is needed, and people who
4 see it blame their fallow, okay? Until something
5 happens, a disaster happens, and then all of a
6 sudden they want to have access to it.

7 How do you work that, and generally
8 speaking, you are right. The public safety people
9 don't change equipment every week, every month,
10 every time new technology comes out.

11 And they tend to be somewhat
12 underfunded compared to a CRMS guy. So I think
13 there is sort of a -- yes, it's there, and it would
14 be nice to share it. However, I think their needs
15 -- and I will report back to the DoD that I said
16 this to, that their needs are similar to the DoD's.

17 You need it and you just have to have
18 absolute access to it. And until somebody develops
19 that magic red button that you push to shut
20 everybody else off, and everybody else understands
21 that, I think we have got a problem here.

22 DR. GOLDBURG: Just two quick comments.

23 One is that I think that secondary markets may
24 actually help to stimulate the deployment of
25 wireless services in rural areas, especially in the

1 cases of regional licenses and so forth, because
2 for a regional license for personal communications
3 services, typically the carriers will use go out in
4 the urban areas where there is the largest return,
5 and then use the money from that to subsidize rural
6 deployments.

7 If you could split that up and sell
8 some of your rural licenses off to companies that
9 are interested in just providing services in a
10 particular market, the services might arrive there
11 more quickly.

12 The flip side of that though, and I
13 think this is just an echo of something Preston
14 mentioned, is that you don't want to create
15 entitlements for revenues from secondary markets.

16 And at the risk of being a little
17 controversial, I would point to the ITFS spectrum,
18 which I think on a megahertz top basis is more or
19 less just a revenue producer for the universities
20 and so forth that at least until fairly recently
21 were leasing it back to Sprint, and to WorldCom,
22 and not using it for the educational programming
23 for which it was intended.

24 MR. MARSHALL: A couple of -- I know we
25 have a couple of questions from the panel. Gerry.

1 PROF. FAULHABER: I just wanted to make
2 a point, which actually you were its first
3 precedent, which is to say how easy is it to
4 reclaim spectrum. And if I listened closely, and
5 maybe you could correct me here, but I think you
6 argued both sides of this issue, which is to say if
7 people are using this inefficiently, and let's say
8 for UHF, then why doesn't the FCC just claim it
9 back?

10 But then when you talked about
11 overriding cell phones for military purposes, you
12 said, oh, that is not going to happen. That is
13 politically infeasible. You can't have this both
14 ways. I think most of us recognize that while we
15 all said when we gave people licenses, you don't
16 have a property right, as a de facto issue, just as
17 a de facto issue, they do.

18 Legally, they don't, but in fact
19 getting spectrum, even if it is not used out of
20 anybody's hands, is a really difficult process, and
21 if you don't think so, look at the next wave case,
22 okay?

23 So I think we kind of have to
24 understand that we've given away the farm already,
25 okay? And that's where we are, and getting this

1 stuff back, if we could do it this way, that would
2 be great. Just say, okay, bring it all back. It's
3 ours. It is not going to happen. It just is not
4 going to happen.

5 MR. MARSHALL: I tried to use your
6 example rather than introducing another upset
7 party. Another good example was brought at the end
8 of the floor, and I think the issue is not that
9 reclaiming is good or bad. It is time scale.

10 The process for reclaiming a regulatory
11 framework, where you are rejustifying the process,
12 versus a very instantaneous reclaiming, if one
13 thinks about 9-11, the last thing that the
14 Department of Defense would want to do would be to
15 move to New York and set up our comms, and bring
16 down the remaining cell systems, and render
17 civilian comms impracticable.

18 So a framework of reclaiming, which did
19 not have degradation and that was on and off, is an
20 uniplentable framework, a framework for reclaiming
21 that is over periods of time, and justified is the
22 difference.

23 I think it is a matter of there is no
24 one size fits all across a variety of scales; from
25 the microsecond in a cognitive radio, through to

1 decades with some of the incumbent licensing.

2 PROF. FAULHABER: I should add
3 incidentally that the power industry has been --
4 and I think you are right. This is certainly no
5 one size fits all, but the power industry has had a
6 class of service which they sold to industrial
7 customers for decades, and it is called
8 interruptable service.

9 And everybody seems okay with that, and
10 from time to time, indeed service gets interrupted.

11 It is part of the contract. So why we can't do
12 that, I don't know. We are just as smart as they
13 are and maybe better.

14 MR. MARSHALL: And I don't want to
15 comment, but I would say that interruptable service
16 and commercial to commercial is very different than
17 the wireless systems that we are looking at that
18 are sold to consumers.

19 The first time a hospital bought
20 interruptable service and 10 people died, and the
21 power company waived the interruptable service
22 contract, that would be the end of it.

23 PROF. FAULHABER: Then you don't buy
24 interruptable service.

25 MR. MARSHALL: I believe if people

1 bought cell phones, and said that just int he case
2 of a building being blown up, your cell phone won't
3 work, we would probably buy the cell phone and then
4 be very upset.

5 PROF. FAULHABER: Then you wouldn't
6 sell for services interruptable.

7 MR. MARSHALL: Okay. We have some
8 questions I think. Yes?

9 AUDIENCE MEMBER: My name is Evelyn
10 World (phonetic) with Worldwide Educational
11 Consultants. I want to play with Gerald's
12 question, or his comment about personal property
13 rights. In this particular scenario, Gerald, say
14 for instance that there was an airline that had to
15 go from Point A to Point B, and it had to travel
16 through air space which you owned the spectrum, and
17 you didn't want them to go through that air space,
18 how would the FAA and FCC handle that particular
19 situation since you want to term it as a property
20 rights concept?

21 PROF. FAULHABER: Okay. When you say
22 the airplane is going through the air space, you
23 don't mean that I would have to give permission for
24 the plane, but for the plane to use spectrum?

25 AUDIENCE MEMBER: Right.

1 PROF. FAULHABER: Yes. This actually
2 illustrates an excellent point, which is to say --
3 and I have to defer to my colleague from Boeing on
4 this, which is to say that when I said that you
5 have to establish property rights, as if that were
6 the easiest thing in the world, it is actually very
7 difficult, because you have to establish a kind of
8 directionality and power.

9 Just like with your land. Think of a
10 good analogy as your land. Airplanes fly over my
11 land all the time, and you know that they don't ask
12 for my permission, okay? That's because I don't
13 have a property right to that air space. I do have
14 a property right up to about -- I don't know, 50
15 feet or something, okay?

16 But they don't have the right to do
17 that, and similarly you would have to define
18 property rights in spectrum to make sure that the
19 airplane guys could use their airplanes without
20 asking everybody's permission. Similarly -- and
21 this is why I use this as an analogy, but Mike has
22 asked me before, well, what about the satellite
23 guys, and what is this guy.

24 And I say, well, look, if you are going
25 to do terrestrial stuff, you are going to have

1 property rights to do this. If you are going to
2 have it for spectrum, you are going to have
3 property rights to do this.

4 It is very different property rights on
5 different pieces of property and the same would be
6 true of airlines as well. Now, that kind of begs
7 the question of how would you define those property
8 rights, and surely they have a lot of clever
9 lawyers here at the FCC to help do that.

10 I know they do. They have really smart
11 guys, okay? But that is the kind of problem that
12 you would have to deal with, and you would deal
13 with it in a property rights context and defining
14 them carefully.

15 MR. WILKINS: I would like to make one
16 point on that, and again talking about the property
17 rights. It is much easier to define in a contract
18 what you own, versus what you have to deliver.

19 So from a standpoint of a contract to
20 use within spectrum -- you know, that is something
21 -- our outside counsel didn't like that because
22 they would much rather see 60 bilateral agreements
23 negotiated out, but if we get one agreement that
24 everyone could use, I think that would be a much
25 better situation.

1 MR. LONGMAN: Wayne Longman, a private
2 party. I have some experience in spectrum
3 management, and I view it as a technical regulatory
4 discipline, and things such as much carry rules, or
5 government or non-government spectrum, being non-
6 technical, causes all kinds of problems when you
7 try to apply technical solutions to technical
8 regimes, which is radio.

9 Another point that I would like to make
10 is I would rather liken what the FCC does to
11 spectrum -- and I wish it would -- as the FDA does
12 to the drug industry, and that is the primary
13 purpose is to cause no harm.

14 So if in fact users of the spectrum
15 want to behave in a way that they want to behave,
16 then the FCC should be protecting them from
17 interference, and it requires a good deal of
18 discipline to do that.

19 Certainly the drug industry when they
20 produce a drug go through a fairly detailed,
21 lengthy and disciplined technical regime to get
22 that drug approved. Well, let me assure you as
23 having done it several times to get radio spectrum,
24 you go through a very long technical procedural
25 basis, and you have peer reviews, and you have

1 competition, and there is no free lunch.

2 MR. ENGELMAN: Thank you. In the peach
3 shirt there. That's the best color that I can
4 tell. It may not be and I apologize if it is not
5 peach.

6 MR. KRAVITZ: No problem. Troy
7 Kravitz, New America Foundation. We seem to be
8 condemning to a degree secondary markets due to
9 defense and public safety concerns, but there is a
10 large difference between public and private
11 spectrum efficiency.

12 Fred Wentland of the NTIA recently
13 estimated that about five -- he would guess, he
14 would be shocked if 5 percent of the NTIA spectrum
15 is used at any given time. Although it would be
16 wonderful to boost utilization of this public
17 spectrum, security concerns override these desires.

18
19 But regarding private spectrum,
20 something like

21 -- private spectrum is an entirely different issue.

22 Something like broadcast provides no unique
23 contact. It is using the most outdated,
24 inefficient technology, available.

25 It serves only a fraction of U.S.

1 households, and it is operating on a license that
2 was issued on a non-permanent basis over a half-a-
3 century ago. And freeing up some of that spectrum
4 is very well possible and entirely desirable.

5 MR. ENGELMAN: Okay. Thank you. And
6 then behind.

7 MR. WEINREICH: Thank you. I am David
8 Weinreich from Globalstar. One question I have for
9 Dr. Faulhaber and his colleagues is that if
10 everything goes to a market-based property rights
11 type of situation, how will interference be
12 handled?

13 PROF. FAULHABER: Thank you. Good
14 question. The point about property rights is that
15 what you need to do, and this gets back to the
16 response that I made to this young lady over here
17 earlier. How do you like that? And that is that
18 the devil is in the details, and the devil is in
19 the property rights, which is to say that you end
20 up having to establish property rights as part of
21 the spectrum that you, quote, own.

22 And the property rights would be
23 governed by the power flux density within a certain
24 area, times, and directions of broadcast, and these
25 would all be built into as they are now under the

1 FCC's rules, which are the technical specifications
2 of the license that you get.

3 That would be built into the property
4 rights. We know how to do that in the case of
5 licensing, and we would do exactly the same thing
6 in the case of property rights. But what we would
7 not put in would be the use restrictions, which
8 also now go into many FCC licenses.

9 But that would be that. Now, there are
10 some paintbrushes which we can't go into it, but
11 which have been dealt with in a previous panel,
12 which is to say interference is not just a
13 transmitter issue. It is a receiver issue, and let
14 me just note that without going into explanations
15 as to how to handle that.

16 But it would have to be built directly
17 and explicitly into the property rights that you as
18 a spectrum owner would have. You would have
19 certain rights to do stuff, and you would not have
20 rights to do other things.

21 Much as if you own land. There is
22 certain things that you can do with your land, and
23 there is certain things that you can't, and that is
24 part of the property right that is conveyed when
25 you purchase land. It would be much the same.

1 MR. MARSHALL: That was the most gentle
2 way of introducing receiver standards that I have
3 ever heard.

4 MR. ENGELMAN: Do we have another
5 question from the audience? Could we have a
6 microphone up front, please. Oh, you've got one.
7 Okay. Thanks.

8 MR. STEVENSON: Carl Stevenson, and I
9 am going to speak as an individual here, and not on
10 behalf of IEEE 802, because I am going a little bit
11 beyond the bounds of established policies and into
12 personal viewpoints.

13 I personally have a problem with the
14 idea of property rights and spectrum is something
15 to be bought and sold. I view it as a public
16 resource, and I think the commission should
17 establish policies that maximize the use of the
18 spectrum.

19 When we hear that only 15 percent of
20 the people in the country are actually watching
21 over-the-air broadcasts, and this signal is being
22 spewed all over the place, to the exclusion of
23 other uses, when we hear it -- and again with all
24 due respect to the importance of public safety
25 communications, but when we hear that only 15

1 percent of their spectrum is actually being used at
2 any given time, I can see tremendous opportunities
3 along the lines of the things that the President
4 has been alluding to with cognitive radios and
5 opportunistic use, where systems such as those that
6 I am interested in, the wireless computer
7 networking and broadband access, things that are
8 growing by leaps and bounds -- you know, we need
9 more spectrum.

10 We have projected shortfalls of 240
11 megahertz above the UNII band allocations, and WECA
12 has a petition before the Commission asking for
13 access to 5478 to 5725. And this is a market that
14 -- you know, when the whole telecom industry by and
15 large has been down the tubes, this is a market
16 that grew 40 percent over the last year.

17 It is the one real success story in the
18 telecom downturn. It is only going to grow. We
19 are going to need more capacity, and one way to
20 have that capacity, in addition to allocations,
21 would be to have unencumbered access under the
22 appropriate policies, where policy is not just a
23 regulatory thing. It is a technical thing that
24 describes the behavior of radio.

25 And where we could, for example, go in

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1 and transmit packets of data on those unused public
2 safety frequencies, or unused private mobile
3 frequencies, in an opportunistic fashion.

4 But using protocols that are designed
5 to listen very frequently, and if the public safety
6 user keys up, we would defer. We can stand latency
7 and if we have enough of this in this opportunistic
8 fashion, the law -- you know, the fact that the
9 public safety user comes up and we stop using one
10 channel isn't going to make a real difference in
11 system capacity and throughput.

12 On the other hand though the idea of
13 property rights, where it would be viewed that
14 public safety or some other group, quote, owns this
15 spectrum, and such uses as I am talking about would
16 be required to pay for the right to access them,
17 seems to me to be contrary to the idea that
18 spectrum is a public resource.

19 MR. ENGELMAN: Okay. I see three hands
20 that would like to respond to that. So why don't
21 we start with Mike on the end, and then Gerry. We
22 will just go down the row.

23 MR. FITCH: I have a brief comment with
24 respect to the property rights models and that is
25 two points. On the property rights models, I would